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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,915	10/23/2001	Ycong-Taeg Kim	SAM2.005	5069

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EXAMINER
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YENKE, BRIAN P

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/002,915

Applicant(s)

KIM ET AL.

Examiner

BRIAN P. YENKE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-10,14 and 16 is/are rejected.
- 7) ☒ Claim(s) 2,4-5,11-13 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 25 Jun 04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. The examiner is providing a new Non-Final rejection based upon the previous rejected claim 1. Claim 1 is still being rejected under 35 USC 102, however with additional language supporting the anticipation of the limitation.

The applicant's arguments with respect to the remaining claims, were found unpersuasive as answered by the examiner below in the new grounds of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 6, 7-10 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang et al., US 2002/0027610.

In considering claims 1, 3 and 9-10,

*a) the claimed inputting a video signal...is met by input 101, which receives an interlaced video signal (Fig 1).*

*b) the claimed comparing mutually corresponding fields and defining a point-wise non-recursive motion decision parameter is met by motion detection 109 (Fig 1),*

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which computes the motion metrics, which includes points between a previous field and a next field (Fig 3). The specification defines the "non-recursive" as motion detection from a few number of fields (i.e.  $x(n-1)$  and  $x(n+1)$  or  $x(n)$  and  $x(n-2)$ ), thus although Jiang does not recite the term "non-recursive", Jiang does detect motion as described in the applicant's specification which defines "non-recursive". Jiang discloses as shown in Fig 3, motion can be about a point (i.e.  $\Delta c$ ,  $\Delta n$  and  $\Delta s$  (page 2, para 22—27).

*c) the claimed computing a recursive motion detection signal...* is met by motion detection 109 (Fig 1), which computes the motion metrics, about a region utilizing the point detected motion (i.e.  $\Delta a$  (page 2, para 24, and computing a max/min of the region utilizing the computed motion about a point. The applicant's specification defines "recursive" as motion detection parameters which utilize the motion detection from previous fields, thus although Jiang does not explicitly recite "recursive", Jiang does perform recursive motion detection since Jiang utilizes the motion detection from 4 fields.

*d) the claimed outputting the recursive motion decision parameter...* is met where the motion metrics computed by motion detector 109 are filtered via spatial median filter 110 and then LUT 111 obtains the weight (blending factor), for frame or field interpolation.

In considering claim 6,

*a) the claimed spatially interpolating a value of the video signal...* is met by frame interpolator 105 (Fig 1)

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*b) the claimed temporally interpolating the value of the video signal...* is met by field interpolator 106 (Fig 1).

*c) the claimed forming a recursive motion decision value...* (refer to rejection of claim 1/c, above).

*d) the claimed mixing an output signal...* is met by alpha blender 112 (Fig 1)

where the blending of the video signal is based upon the motion value determines the blending of the field and/or frame interpolation (page 3, Para 40-44).

In considering claims 7-8,

Jiang discloses that based upon the motion metric value which may take on a value between 0 and 8, is used in determining the blending factor (motion decision value) which varies between 0 and 1 (page 3, Para 42) based on the interpolation methods. As shown in Fig 5, when there is little or no motion (motion metric value = 0-4) the field (temporal) interpolation is used, where there is high or maximum motion (motion metric value = 5-8) the frame (spatial) interpolation is used. Thus the motion decision value (i.e. blending factor) is varied between 0 and 1 based upon a motion metric value between 0 and 8.

In considering claim 16,

*a) the claimed an input...* is met by input 101, which receives an interlaced video signal (Fig 1).

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*b) the claimed spatially interpolating a value of the video signal...* is met by frame interpolator 105 (Fig 1)

*c) the claimed temporally interpolating the value of the video signal...* is met by field interpolator 106 (Fig 1).

*d) the claimed an apparatus according to claim 9...* (refer to rejection of claim 9, above). It is also noted that the motion detection is carried out in parallel with the spatial (frame) and temporal (field) interpolation.

*e) the claimed a mixer...* is met by alpha blender 112 (Fig 1) where the blending of the video signal is based upon the motion value determines the blending of the field and/or frame interpolation (page 3, Para 40-44).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over, Jiang et al., US 2002/0027610 in view of Gowda et al., US 6,275,259

In considering claim 14,

Regarding the use of a LPF connected to an output the recursive motion detection unit.

Jiang does disclose the use of a LPF 108 (Fig 1), however Jiang does not explicitly disclose the use of a LPF prior to outputting.

However, the use of a filter (LPF), which is used to filter a signal, whether at the input, output or in-between is a matter of design choice, based upon the size of the system, the type/quality of the signal inputted/output and thus bares no patentable weight.

Based upon applicant's previous response, the examiner will incorporate Gowda (col 3, line 10-21) which discloses adding a LPF prior to outputting a signal is optional, thereby supporting the examiner's previous rejection that the addition of a LPF is not a patentable distinct feature, since it is notoriously well known to include LPF throughout a system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Jiang which discloses the use of a conventional LPF and a smoothing filter on the input to remove any unwanted signals/noise, with Gowda by optionally including a LPF at the output, to also remove any unwanted signals/noise which may have attached to the desired signal.

#### ***Allowable Subject Matter***

4. Claims 2, 4-5, 11-13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (703) 305-9871. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, John W. Miller, can be reached at (703)305-4795.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)305-HELP.

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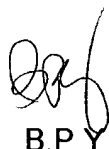
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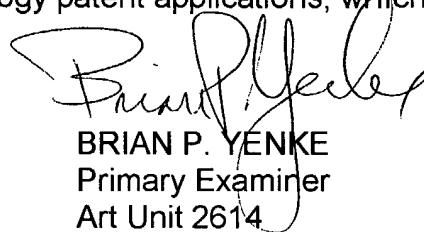
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B.P.Y

04 October 2004



BRIAN P. YENKE  
Primary Examiner  
Art Unit 2614